SAMPLE LESSON PLAN #5 (GRADES K-6)

Adapted from County of L.A. Environmental Defenders/EPA

KEEPING CLEAN & GREEN

HOUSEHOLD HAZARDOUS PRODUCT DANGERS, DISPOSAL AND ALTERNATIVES

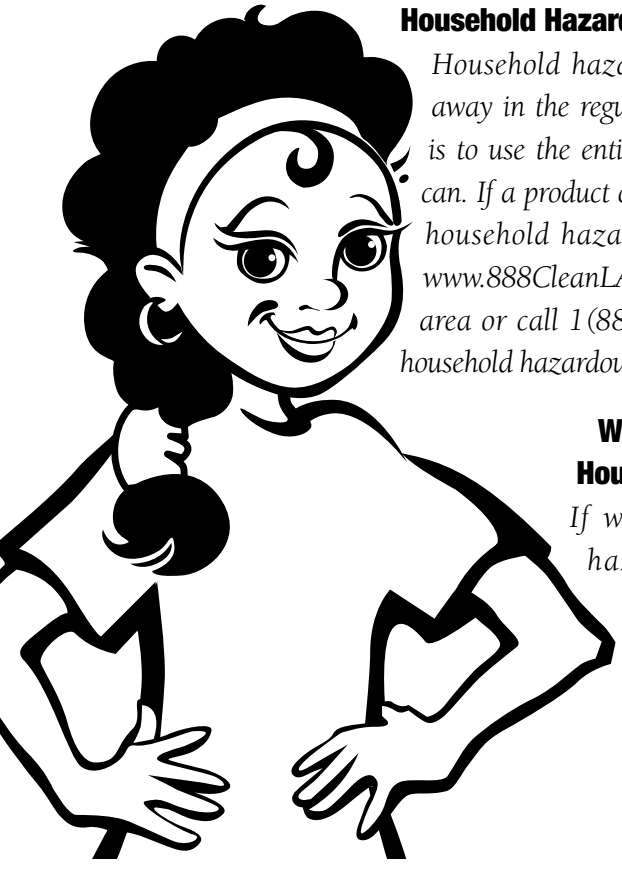
BACKGROUND

What is Household Hazardous Waste?

Household Hazardous Waste is any product labeled toxic, poison, corrosive, flammable, combustible or irritant that is to be discarded. If household hazardous products are not used, stored and discarded properly, they pose a threat to the environment by polluting the air and water, and endangering human health.

Household hazardous products include but are not limited to:

- *paint*
- *batteries*
- *nail polish*
- *nail polish remover*
- *turpentine*
- *weed killer*
- *bug spray*
- *fertilizer*
- *alcohol-based lotions*
- *expired medicine*
- *ammonia-based cleaners*
- *floor care products*
- *aerosol cleaners*
- *furniture polish*
- *oven cleaners*
- *drain cleaners*
- *auto body repair products*
- *antifreeze*
- *motor oil*
- *car wax*
- *shoe polish*
- *moth balls*
- *glue*



Household Hazardous Waste Collection Programs

Household hazardous waste should not be thrown away in the regular garbage. The best disposal option is to use the entire product or give it to someone who can. If a product cannot be used, it should be taken to a household hazardous waste collection event. Visit www.888CleanLA.com to find a collection event in your area or call 1(888)CLEAN LA. Safely disposing of household hazardous waste protects our environment.

Why Use Alternatives to Household Hazardous Products?

If we buy and use fewer household hazardous products or use safer alternatives, we will create less household hazardous waste and help improve the environment.

METHOD:

Students will conduct experiments to compare effectiveness of commercial cleaning products and less toxic alternatives. Through discussion, students learn how to recognize, store and dispose of household hazardous products and explore alternatives.

MATERIALS:

- Lemon juice
- Water
- Empty spray containers
- Newspaper
- Baking soda
- Sponges
- Commercial kitchen cleaning product (with ammonia, alcohol, solvent or other toxic ingredient)
- Commercial window cleaning product (with toxic ingredient)
- Optional: Cornstarch, vinegar

TIME:

The experiment can be conducted in one class period by the teacher or by students in groups.

The Environmental Defenders Program, the County of Los Angeles Department of Public Works' ongoing elementary school environmental education outreach program, includes a free school assembly show, teacher education component, and community outreach. The program aims to teach children to prevent storm water pollution and to practice the Three R's — Reduce, Reuse, and Recycle.

For more information about this lesson and the Environmental Defenders, please contact:

The Environmental Defenders
County of Los Angeles Department of Public Works
900 S. Fremont Avenue, 9th Floor
Alhambra, CA 91803-1331
1(888) CLEAN LA

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How Household Hazardous Waste Contaminates the Environment

IN THE TRASH — *Much of our garbage is taken to landfills. Containers of hazardous materials may break open when the garbage is compacted. Rainwater mixes with liquids and soaks through the garbage. Some hazardous materials may leak out of the landfill with the water and contaminate groundwater and surface water.*

DOWN THE DRAIN — *A small amount of household hazardous waste goes down the drain or is flushed down the toilet. Sewage is treated in a wastewater treatment plant. The water is cleaned as much as possible and released into rivers or lakes. Much of the solid material (which can be contaminated by cleaners and paints) is separated into a residue called sludge, which is sometimes used as a fertilizer for farm crops.*

INTO THE STORM DRAIN — *Some household hazardous waste is washed by storm water into storm drains or is dumped there by people. Most storm drains pour their untreated contents into nearby waterways.*

DUMPING ON THE GROUND — *Household hazardous waste left in ditches or on the ground can mix with rainwater and contaminate waterways and groundwater supplies.*

LESSON

PROCEDURE – GRADES K-3

A. Introduce experiment by asking students to name potentially toxic products used to clean and freshen their houses or used for yard and garden care. Explain that students can determine if a product is hazardous by reading the product label and looking for signal words such as "Danger," "Poison," "Warning" or "Caution." Ask students what they should never do with these materials (e.g., play with them, eat or drink them, let siblings or pets touch them).

B. Read labels from commercial cleaners. Discuss storage of hazardous products (away from small children, animals, heat and flame; lids on securely; clearly labeled, etc.). Discuss how household hazardous materials can contaminate the environment (see background section). Explain to students that many hazardous products can be replaced by safer alternatives.

C. Ask students what lemon juice and baking soda are normally used for. Explain that, although these products are normally used in cooking, they also can be used as ingredients in cleaners. Tell students that they are going to create their own cleaners.

D. Divide class into small groups and assign each group the task of cleaning desks or washing windows. Give each group the appropriate recipe (see safer alternative recipes on this page), ingredients and necessary materials to complete the task. Have each group clean using the commercial product, then the natural alternative.

E. Ask each group to report the results to the class. Ask the class to compare the results of using the commercial products and the safer alternatives.

PROCEDURE – GRADES 4-6

Conduct same experiment listed above.

A. Have students create magazine or billboard advertisements that would appeal to kids their own age and motivate them to use safer alternatives to household hazardous products. Encourage students to be creative and even develop catchy taglines or ad copy that conveys the message clearly and concisely. Have students share their advertisements with the class.

DISCUSSION

What are some advantages of using the safer alternatives? *They are safer for you and the environment and less expensive.*

Is the household hazardous waste as harmful to the environment if it is disposed of properly? *No.*

How do we dispose of household hazardous waste? *To learn about collection events for disposal, visit www.888CleanLA.com or call 1(888)CLEAN LA.*

ALTERNATIVES TO HOUSEHOLD HAZARDOUS PRODUCTS

- **SCOURING POWDER** — Sprinkle baking soda on a damp sponge. Rub the desk with the sponge and rinse with a wet rag.
- **WINDOW CLEANER** — Mix one tablespoon lemon juice with one quart of water. Add to spray containers. Apply to surface and dry with newspaper. Or add ¼ cup vinegar and one teaspoon cornstarch to ½ gallon warm water for another effective cleaner.
- **DRAIN CLEANER** — Mix ¼ cup vinegar and ¼ cup baking soda. Pour mixture down drain. Let stand for a few minutes and rinse with boiling water.
- **COPPER CLEANER** — Apply warm vinegar and salt with a soft cloth. Rinse with water.
- **JEWELRY CLEANER** — Rub on a small amount of toothpaste, rinse and polish with a soft cloth.
- **PESTICIDE** — Weed the garden; import predators (lady bugs, etc.) to eat pests.